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Producto de una serie cualqueira por la exponencial e^{-x}. (Estrait du Progreso Matemático de Zaragoza, ser. 2'. An. II, nº. 10, 1900).
Una trasformacion del Prof. Allardice (extr. ibid. nº. 11) (1900).
Alcune combinazioni di formule (extr. ibid. nº. 17) (1901).
Su di alcune proprieta delle Superfici a generatrice circolare (Supplem. al Vol. 1 delle Matematiche).
Una costruzione geometrica dell'equazione cubica (nel Vol. 1, nº. 5 del "Le Matematiche").
Une méthode élémentaire de recherche del maxima et minima. (Extr. de la Gazeta Matematica. An. VII, nº. 9, Mai 1902, Buçuresti,—(Rumania).
Saggio di nomenclatura della Recente Geometria del triangolo (dans le journal "Il Pitagora," vol. VIII, nⁱ. 3a9, 1902).
Alcune asservazioni sui pendoli e sui cronometri (Extr. de la Rassegua Tecnica Italiana, An. II, nⁱ. 4e5, Messina, 1902).
Complementi di Geometria elementare,—Milano, 1902, U. Hoepli, ed.
Elementi di Trigonometria Piana e Sferica, traduction, avec notej et adjointes du Traité de M. l'Abbé H. Gelin, de Huy.
Trattáto d Aritmetica, en collaboration de M. Gelīn, à Huy.
Alcune formule della Teoria delle Superficie (Extr. de la Revista simestral de Matemática, An. II, nº. 6, Zaragoza, 1902).

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NINTH SUMMER MEETING OF THE AMERICAN MATHEMATICAL SOCIETY.*

By DR. L. E. DICKSON, of the University of Chicago.

The appropriateness of selecting a place as far west as Evanston, Illinois, for one of the Summer meetings of the whole Society was shown by the large and representative attendance as well as by the enthusiasm evinced at the four official sessions and at the several social concourses. Bearing on the geography of the subject is the fact that Chicago contributes the President of the Society, Professor E. H. Moore. There were present members from Columbia, Cornell, Johns Hopkins and other eastern institutions; from Kansas, the Dakotas, and other western States; while the middle west was very fully represented. The number of papers presented exceeded thirty, being equal to the number presented last Summer at Ithaca.

The program opened Tuesday morning, September second, with a paper by Dr. F. R. Moulton of the University of Chicago, entitled "A method of constructing general expressions for the elements of the planetary orbits which are valid for a finite time," in which objection was made to the so-called proofs by the French astronomers of the past century of the stability of the solar system for infinite time.

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*This report was written by request of the Editor.

Under certain restrictions, Dr. Moulton established rigorously the existence of periodic solutions. The important work of Dr. Moulton in introducing modern mathematical rigor in astronomical investigations cannot be too highly commended.

Professor Hathaway of Rose Polytechnic Institure, read a paper on "The quaternion treatment of the problem of three bodies," obtaining very condensed expressions for known results. In the discussion, several members expressed doubt as to the power of quaternion analysis for the discovery of new results.

Professor Dickson of the University of Chicago presented "Definitions of a linear associative algebra by independent postulates," as well as "Two definitions of a field by independent postulates;" giving also an account of the related paper by Dr. E. V. Huntington of Harvard University. Several members participated in a discussion of these three papers and the more genersl topic of axioms and postulates, as also illustrated by Hilbert's work in Geometry and the group definitions by Huntington and Moore. One point emphasized was the advantage of simple natural postulates, even if the *number* of independent postulates was larger than for a more artificial system. The three papers will appear in the *Transactions* of the Society.

The first paper on Tuesday afternoon was by Professor Oskar Bolza of the University of Chicago, who gave "Some instructive examples in the calculus of variations." To indicate the pedagogical value of the paper, it may be remarked that a volume by Professor Bolza on the Calculus of Variations is soon to appear in the Decennial Publications of the University of Chicago.

Professor J. B. Shaw of Kenyon College, read "On linear associative algebras," the paper being a continuation of the one read recently before the Chicago Section.

Dr. W. B. Fite of Cornell University, read "Concerning the commutator subgroups of groups whose orders are powers of primes."

Mr. J. W. Young of Cornell, presented a very clear preliminary report "On a certain group of linear substitutions and the functions belonging to it." The paper has close contact with Klein's Elliptic Modular Functions.

A paper on the topic "In technical theory of numbers," by Professor Westlund of Purdue University, was presented in abstract by Professor Moore.

Professor L. E. Dickson of Chicago, made a brief "Announcement of new simple groups," related to his paper in the *Transactions*, July, 1901.

On Wednesday morning, Professor Maschke gave a report on the paper "Ueber die Reducibilität der Gruppen linearer homogener Substitutionen" by Professor Alfred Loewy of the University of Freiburg. The paper will appear shortly in the *Transactions*.

Professor H. S. White of Northwestern University presented "A special twisted cubic with rectilinear directrix," generalizing certain interesting properties of conics.

Professor F. Morley of Johns Hopkins University applied the geometry of the complex variable to obtain "Orthocentric properties of the plane *n*-line." He announced theorems relating to a general system of straight lines.

Four other papers on the programme and read by title were of geometrical character; they were by Dr. Snyder of Cornell, Professor Field of Carthage College, Dr. Keyser of Columbia University, Professor Emch of Colorado University.

On Wednesday afternoon were presented several papers not on the printed programme, also (by title) papers by Dr. Eisenhart of Princeton, Professor Roe of Syracuse University, Dr. Epsteen of Philadelphia, Mr. Ford of the University of Michigan, and finally the following three papers:

"The bilinear point-line connex in space; an extension of Clebsch's connex," by Dr. E. Kasner of Columbia University; "Multiple points of Lissajous's curves in two and three dimensions," by Mr. E. A. Hook, Milwaukee; "Null systems in space of five dimensions," by Professor John Eiesland, Theil College.

A large number of the members lunched together each day at Evanston's one hotel, and dined together in one of the College buildings Tuesday evening, afterwards visiting the University observatory. On Thursday, the day after the Society adjourned, a number of members visisted the Chicago Steel Works and the University of Chicago, lunching together at the Quadrangle Club.

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THE EXPRESSION OF THE nth POWER OF A NUMBER IN TERMS OF THE nth POWERS OF OTHER NUMBERS, n BEING ANY INTEGER; AND THE DEDUCTION OF SOME INTERESTING PROPERTIES OF PRIME NUMBERS.*

By J. W. NICHOLSON, A. M., LL. D., Professor of Mathematics in the Louisiana State University.

Any polynomial of *m* terms is equal to, and may be expressed under the form of:

+[The sum of its terms taken in sets of $m-1$]
−[" " " " " $m-2$]
+[" " " " " $m-3$]
−[" " " " " $m-4$]
. . . .

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*This paper was read to the American Mathematical Society several years ago and in presenting it the author asked whether or not anything of the kind had ever before been discovered. The inquiry was referred to Dr. Artemas Martin who reported that the main formula, designated in this paper by (4), had been discovered and presented to the London Mathematical Society, but that the paper contained none of the transformations or deductions embodied in my discovery. With the hope that others will be interested in the matter and reach still more beautiful and important deductions, the paper as presented by me to the Society is now submitted to the public.